

ABSTRACT OF THE DISCLOSURE

A vapor-compression refrigerant cycle system with a refrigeration cycle and a Rankine cycle includes a compressor, a radiator, a gas-liquid separator, a decompression device and an evaporator. In the vapor-compression refrigerant cycle system, a liquid pump is disposed for supplying the liquid refrigerant in the gas-liquid separator to a heater for heating the refrigerant, a cooling means is provided for cooling the liquid refrigerant to be sucked into the liquid pump, and an energy recovery unit for expanding the refrigerant flowing out of the heater is disposed to recover thermal energy in the refrigerant from the heater. When the Rankine cycle is set so that the energy recovery unit recovers the thermal energy, the cooling means cools the liquid refrigerant to be sucked into the liquid pump. Therefore, pumping efficiency of the liquid pump can be effectively improved.